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STRENGTHENING OF INTERNATIONAL COOPERATION AND COORDINATION OF EFFORTS TO STUDY, MITIGATE AND MINIMIZE THE CONSEQUENCES OF THE CHERNOBYL DISASTER

Report of the Secretary-General

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I. INTRODUCTION

1. The present report has been prepared pursuant to General Assembly resolution 47/165 of 18 December 1992. It summarizes developments that have taken place since the adoption of the resolution and presents the conclusions of an analytical review of all United Nations activities to study, mitigate and minimize the consequences of the Chernobyl disaster in those countries most affected, including related Secretariat arrangements, taking full account of ongoing programmes and other relevant activities, including those of regional and other organizations, and the principle of comparative advantage, as requested in resolution 47/165. In addition, the report presents recommendations for further action to stimulate and coordinate assistance to the regions in Belarus, the Russian Federation and Ukraine, which continue to suffer from the consequences of Chernobyl.

II. EVOLUTION OF THE UNITED NATIONS APPROACH TO ADDRESSING THE CONSEQUENCES OF THE ACCIDENT

A. The accident and the initial response

2. On 26 April 1986, a powerful explosion occurred in Unit 4 of the Chernobyl nuclear power plant in the then Ukrainian Soviet Socialist Republic, resulting in the largest release of radioactive materials into the atmosphere ever recorded. Even after over seven years, the full health, social and environmental manifestations, both immediate and long-term, remain unclear and unpredictable. The manner and content of the initial response from the Soviet authorities left a legacy of scepticism as to the facts, and a loss of confidence among the affected populations.

3. Four years after the accident, the Soviet Union brought its appeal for assistance before the United Nations. This was considered at the first regular session of 1990 of the Economic and Social Council, resulting in the adoption of Council resolution 1990/50. Pursuant to a request in that resolution, the Secretary-General sent a United Nations mission to the affected areas, headed by the Executive Secretary of the Economic Commission for Europe (ECE). The outcome of that mission and the results of a study by the International Atomic Energy Agency (IAEA), the World Health Organization (WHO) and the Food and Agriculture Organization of the United Nations (FAO) that had been initiated earlier in the year were included in the Secretary-General's report to the forty-fifth session of the General Assembly (A/45/643).

4. Pursuant to General Assembly resolution 45/190 of 21 December 1990, the Secretary-General appointed a United Nations Coordinator of International Cooperation on Chernobyl, and a United Nations Inter-Agency Task Force for Chernobyl was established. The Coordinator undertook a series of missions to the affected areas, which culminated in the drafting of a Joint Plan of Action. This Plan of Action served as the principal document at a Pledging Conference held in New York in September 1991. Shortly after that a United Nations Trust Fund for Chernobyl was established to receive contributions of Member States. In its resolution 46/150 of 17 December 1991, the General Assembly requested the Secretary-General to continue efforts aimed at addressing the consequences of the Chernobyl accident.

5. The Plan of Action presented at the Pledging Conference covered 131 projects estimated at a total cost of about $646.5 million. These included projects for obvious emergency action, as well as broader proposals on the economic development of areas to which large population groups were likely to be resettled. The response was extremely modest: only $970,807 was received by the Chernobyl Trust Fund (see A/47/322/Add.1 and 2-E/1992/102/Add.1 and 2).

B. The project-oriented approach

6. In order to address the consequences of the disaster, the broad-ranging nature of the problem, which was compounded by the difficult economic situation in the affected States and the scarcity of available resources that resulted from the weak response to the Pledging Conference, warranted a more realistic and better defined approach based on solid facts and sober assessments. It was considered necessary (a) to determine the priorities and the most urgent needs, (b) to take stock of ongoing programmes, (c) to determine the time-frames for action, (d) to identify appropriate implementing entities, and (e) to identify potential funding sources.

7. At a meeting at Kiev in November 1992, agreement was reached with representatives of the three Governments on the priority areas for action. They were identified as:

(a) Health: creation of medical centres for examination and treatment of children and adults, and equipping of medical institutions in the contaminated zone;

(b) Economic rehabilitation: formulation of plans, definition of special economic conditions and advantages for foreign investors;

(c) Socio-psychological rehabilitation: creation of centres for children and teenagers;

(d) Food and agriculture: production of uncontaminated food products and products containing special additives.

8. This was the first step towards a more focused approach to this problem, distinguishing the specific needs of the affected areas.

9. In March 1993 the post of United Nations Coordinator of International Cooperation on Chernobyl was conferred upon the Under-Secretary-General for Humanitarian Affairs. The Coordinator convened a meeting of the Inter-Agency Task Force for Chernobyl at Geneva on 16 April 1993, enabling the Task Force members to provide the fullest information on the activities of their respective agencies for the purposes of an analytical review, and to define the new strategy in terms of these activities and their future intentions. Detailed information on all current projects of each agency was collated.

10. In keeping with the second objective of the meeting, the agencies were requested to propose specific projects within the four priorities identified, for which funding could be obtained either from the agencies' regular budgets or from possible extrabudgetary sources. These were to be clearly defined as short-term, medium-term and long-term initiatives.

11. As a result of this meeting the new approach was consolidated and launched. Each of the Task Force members has subsequently submitted to the Coordinator priority projects defined in clear-cut time-frames.

12. In May 1993 the Coordinator undertook a mission to Belarus, the Russian Federation and Ukraine. He visited the regions affected by the disaster, including the Chernobyl reactor site itself and the exclusion zone around it. On 26 May he took part in a coordinating meeting at Minsk with the Ministers of the affected States responsible for Chernobyl relief, preceded by thorough bilateral discussions in the three capitals. This new high-level coordinating mechanism will meet on a regular basis, once or twice a year, to maintain a direct ministerial-level channel for the exchange of information on the efforts of the United Nations system on Chernobyl, to provide for more precise coordination of international efforts with the activities of national agencies, and to identify ways of promoting and strengthening efforts to study, mitigate and minimize the consequences of the Chernobyl disaster.

13. The Minsk meeting, emphasizing the importance of openness and transparency in issues of nuclear safety and nuclear waste management, stressed the need to invigorate efforts aimed at strengthening international cooperation on Chernobyl. The new project-oriented approach, agreed to at the meeting, formed the basis for this renewed effort.

14. In this context, closer cooperation and a more effective division of labour were seen as essential, not only between the United Nations and the affected States, but also among the United Nations system and the European Community, the Organisation for Economic Cooperation and Development (OECD), the Conference on Security and Cooperation in Europe (CSCE), the European Bank for Reconstruction and Development (EBRD), the World Bank, bilateral donors, non-governmental organizations, industry, etc. The United Nations would act as a catalyst in this effort and assist in bringing the various parties together.

15. There was general agreement at the meeting at Minsk, in the light of past experience, on the need for a flexible funding strategy. Financing would be sought on a bilateral, regional and multilateral basis to complement United Nations system resources. Information on activities of the United Nations system, submitted to the Governments of the affected States, was confirmed by the participants as the basis for short-term priority action by the United Nations system in addressing the consequences of the accident. A document detailing projects proposed by the Task Force Members for future implementation was also presented at Minsk.

16. As a result of the meeting, a communiqué was signed by the three Ministers and the United Nations Coordinator in which they agreed:

(a) To undertake additional efforts to implement priority projects, submitted to the United Nations Coordinator, which correspond to the needs of the population of the three States and represent a solid basis for future action in the medium- and long-term;

(b) To identify possible sources of funding on a bilateral, regional and multilateral basis for the implementation of Chernobyl projects;

(c) To create a quadripartite committee (with the participation of the Ministers of the three States responsible for Chernobyl relief and of the United Nations Coordinator) for coordination of activities aimed at addressing the consequences of the Chernobyl accident;

(d) To encourage the incorporation of the Chernobyl problem into the regular activities of the specialized agencies of the United Nations system in view of the long-term nature of the consequences of the catastrophe;

(e) To request the Director-General of WHO to review the possibility of incorporating into that organization's programme of activities a project on the study and treatment of the health of the persons who took part in the immediate efforts at liquidating the results of the accident.

17. In May 1993, the Management Committee of the WHO International Programme on the Health Effects of the Chernobyl Accident (IPHECA), which includes the Ministers of Health of the affected States, met at Geneva to review the status of implementation of the Programme. At this meeting it was noted that severe financial constraints had enabled the implementation of only five of the many important health projects. It was also feared that their abrupt discontinuation, should new resources not be forthcoming, would be very distressful to the affected populations covered by IPHECA in the selected areas of Belarus, the Russian Federation and Ukraine.

18. As part of an initiative to bring about a higher degree of cooperation with regional and other organizations involved in the issue, the United Nations Coordinator held meetings with representatives of the European Community in June 1993. During these meetings, support was expressed for the new approach taken by the United Nations system. Working-level meetings were held as a follow-up with the Commission of the European Communities in Brussels in July, where a substantial amount of detailed information on projects being undertaken by the respective organizations was exchanged. Arrangements were made to maintain and further this cooperation.

19. As requested by the Assembly in its resolution 47/165, the United Nations Coordinator presented an oral report to the substantive session of the Economic and Social Council on 22 July 1993. In the discussion that followed, the focused and project-specific approach of the United Nations system to addressing the consequences of Chernobyl received positive evaluation. In particular, the catalytic role of the United Nations in this issue and the movement towards better coordination and a more effective division of labour, which form an integral part of this approach, were highlighted as essential and timely.

20. In its decision 1993/232, the Council took note of the oral report made on behalf of the Secretary-General by the Under-Secretary-General for Humanitarian Affairs and of the proposals for future action on this issue contained therein, and decided to keep the matter under review.

21. On 23 July 1993 the Coordinator convened at Geneva a meeting of the Inter-Agency Task Force for Chernobyl with the participation of the representatives of the Governments of Belarus, the Russian Federation and Ukraine. The main purpose of the meeting was to determine ways of approaching potential donors for the financing of specific projects. In order to do that,

it was necessary to prepare thoroughly the funding requirements and make them as precise and as accurately costed as possible.

22. To this end, the first draft of a funding request for presentation to donors was submitted to members of the Task Force for their review and comments. In reviewing the document, it was stressed that, to the extent possible, preference was to be given to projects that promised tangible results for the affected population, as opposed to purely research projects.

23. During the discussion with the representatives of the three affected States, issues related to better coordination at the recipient-country level and a general improvement of coordination and cooperation were discussed.

24. Representatives of the three affected States welcomed the concept of an "expanded" Task Force meeting and proposed that the next meeting of the Task Force be held at the time of the discussion of this item in the General Assembly, with the participation of the representatives of the affected States and of the donor countries and organizations.

III. RESULTS OF THE ANALYTICAL REVIEW

25. An analytical review was carried out on the basis of information on bilateral activities received from Member States, information on the activities of the agencies of the United Nations system and members of the Inter-Agency Task Force for Chernobyl, information on multilateral and bilateral activities of the European Community, information on activities of the Commission of the European Communities and preliminary information from the Commission on activities of the Group of 24 countries. A database on research and assistance related to the radiological consequences of the Chernobyl accident, compiled by IAEA, has provided valuable information on international activities for the purposes of the analytical review.

26. In order to maximize the objectivity of the analytical review it was based strictly upon the information received from the above sources, and it focused on projects that were either completed or under way. This information was analysed according to a number of specific parameters: the classification of projects into those involving the provision of assistance and those primarily relating to research, and within these categories, their distinction by the area of activity. The financial expenditures, the origin of these resources and the type of funding arrangement for the projects were further examined. Where possible the mechanisms through which projects operated, administratively and in the field, were identified and the distribution of projects by country surveyed. Finally, areas of overlap and collaboration were reviewed.

A. Assistance activity

27. Assistance activities of the United Nations system focus primarily on the health of the affected populations (see paras. 48-55, 71 and 76), their socio-psychological rehabilitation (see paras. 67 and 75), the social and economic rehabilitation of territories, in particular those to which populations have been resettled from contaminated areas (see paras. 68, 69, 72 and 74), and radiation protection (see paras. 58-60, 62, 66 and 71). Activities are also

being undertaken, although to a lesser extent, to address the agricultural and environmental consequences of the disaster (see paras. 56, 57, 66 and 73). Numerous assistance projects are being undertaken in the field of nuclear safety (see para. 65), although it should be noted that, within the United Nations system, they have not generally been viewed in the context of the direct consequences of the Chernobyl accident.

28. Multilateral assistance activities of the European Community (Commission of the European Communities - Technical Assistance to the Commonwealth of Independent States (TACIS), the group of seven major industrialized countries, EBRD), specifically related to the Chernobyl accident, focus primarily on nuclear safety at the Chernobyl nuclear power plant itself (see paras. 78, 80, 86 and 87) and on the design and manufacture of techniques and equipment for the decontamination of affected areas, including agricultural land (see para. 77).

29. Assistance provided on a bilateral basis is largely covered within the projects of the group of 24 countries. The main focus of activity was nuclear safety at Chernobyl and other nuclear power plants (see paras. 88, 89, 91, 93, 94, 97, 99 and 100), decontamination of agricultural land (see paras. 88, 90, 92, 95 and 99), the monitoring and minimizing of radioactive contamination in foodstuffs (see paras. 95 and 99), and the measurement of the radiation exposure of the population (see paras. 88, 91, 92 and 98). Assistance in the field of health is being provided, although to a lesser degree (see paras. 88, 90 and 94), and certain individual States have provided additional assistance in kind.

B. Research activity

30. Study and research into the consequences of the Chernobyl accident being undertaken by the United Nations system focus primarily on the health effects on the exposed populations (see paras. 48-53, 55, 61 and 63) and on the impact of the disaster on the environment (see paras. 56, 59, 62, 66, 70, 72 and 73). As an additional note, the International Chernobyl Project, undertaken at the request of the Union of Soviet Socialist Republics, studied and evaluated the steps taken to resettle and safeguard the health of populations following the accident (see para. 56).

31. Multilateral research activities of the European Community focus on the effects of the Chernobyl disaster on food, agriculture and the environment (see paras. 82-84), including research into decontamination techniques (see paras. 82 and 83). Studies also focus on certain health effects of the accident (see paras. 83 and 84). More general studies relate to the prediction of radiation effects after a nuclear accident and measures that should be taken to address them (see para. 84).

32. Numerous research activities are being undertaken by States through several scientific and academic institutions on an independent basis and bilaterally. These are principally concerned with the measurement of the radiation exposure of the populations and the contamination of territories (see paras. 91, 92 and 98). Many such institutions are also participating in projects of the United Nations system and the European Community.

C. Distribution by country

33. The table below shows an approximate distribution by country of Chernobyl-related assistance and research projects. It should be noted that many of these projects cover all three affected States.

Organization	Number of assistance projects covering		
	Belarus	Russian Federation	Ukraine
United Nations system	24	17	18
European Community multilateral (TACIS)	-	-	3
Bilateral and group of 24 countries	8	10	20

Organization	Number of research/study projects covering		
	Belarus	Russian Federation	Ukraine
United Nations system	13	9	10
European Community multilateral (TACIS)	12	12	16
Bilateral and group of 24 countries	1	1	3

D. Resources and funding arrangements

34. The overall expenditure to date on assistance by the United Nations system to the affected States, within the areas specified above, is approximately $19.7 million, which was principally mobilized from extrabudgetary sources. Approximately $17.6 million (89 per cent) of this sum was expended on health projects and about $1 million (5 per cent) on projects for socio-psychological rehabilitation. With some exceptions, few funding arrangements or cost-sharing agreements exist with the recipient States. Expenses for the conducting of research projects were largely covered by the agencies' regular budgets, with services and expertise frequently provided on a voluntary basis.

35. The overall expenditure to date on multilateral assistance related to Chernobyl by the European Community is approximately $0.7 million, allocated from the TACIS budget. It was expended on two projects relating to nuclear safety and decontamination (a further $7.2 million are earmarked for work on the decommissioning of the Chernobyl Unit 4). This sum does not include in kind assistance. The total expended to date by the European Community on multilateral research activities is approximately $10 million. Funding for these research projects was provided on a cost-shared basis with the recipient States. Other multilateral activities include $0.6 million earmarked by EBRD for assistance in containment of the Chernobyl Unit 4.

36. In many cases assistance provided by States on a bilateral basis covers a wider range of activities than is strictly relevant to the Chernobyl accident and its consequences, and is often over a broader geographical area. Such assistance includes nuclear safety projects covering other nuclear power plants in the Commonwealth of Independent States and Eastern Europe, rehabilitative holidays for children affected by the disaster and general food aid to the three States. More than $350 million has been expended or committed by States (see chap. IV, sect. C).

37. The total expended to date on bilateral assistance projects directly related to Chernobyl is about $28 million, of which approximately $18.15 million (65 per cent) was expended on projects relating to nuclear safety (although some of these projects still cover other nuclear power plants, in addition to Chernobyl itself), approximately $0.67 million (2 per cent) on decontamination projects, and about $9.19 million (33 per cent) on activities to measure the radiation exposure of populations and the radioactive contamination of foodstuffs. Expenditure on assistance in kind is not included, as the relevant quantities could not be distinguished on the basis of the information received. An indication of expenditure on bilateral research projects to date cannot be given, as insufficient information was received in this regard. Data on funding arrangements was also not provided.

E. Secretariat arrangements and operational mechanisms

38. The structure through which the United Nations system addresses the issue consists of the United Nations Coordinator of International Cooperation on Chernobyl, appointed in accordance with General Assembly resolution 45/190, and his office. The various assistance and research projects are prepared and implemented by the organizations of the United Nations system - the United Nations Children's Fund (UNICEF), the United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP), ECE, the United Nations Centre for Human Settlements (Habitat), the International Labour Organisation (ILO), FAO, the United Nations Educational, Scientific and Cultural Organization (UNESCO), WHO, the World Meteorological Organization (WMO), the United Nations Industrial Development Organization (UNIDO) and IAEA - members of the Inter-Agency Task Force for Chernobyl.

39. The Coordinator maintains regular contact with these agencies and chairs meetings of the Task Force, which are held approximately three times a year. The Coordinator is a member of the coordinating committee, together with the Ministers of the three affected States responsible for Chernobyl relief, established in May 1993. Documentation for its meetings and those of the Inter-Agency Task Force is prepared by the office of the Coordinator.

40. The integrated United Nations/UNDP offices in Kiev and Minsk have responsibilities related to Chernobyl, as will the office shortly to be opened in Moscow, and they participate in coordination with the national authorities and institutions. The office in Kiev is at present establishing a central interactive database on Chernobyl to maintain the availability of up-to-date information and enhance cooperation at the operational level. UNESCO has also established an office in Kiev to coordinate activities related to the socio-psychological rehabilitation centres and to select and train their future personnel.

41. The activities of the Commission of the European Communities on Chernobyl are principally coordinated by and implemented through three Directorates: (a) Directorate of G24 Nuclear Safety, Industry and the Environment, Civil Protection, and (b) Directorate of Nuclear Safety, both within Directorate-General XI (Environment, Nuclear Safety and Civil Protection); and (c) Directorate of Research and Technical Development, within Directorate-General XII (Science, Research and Development). The heads of these Directorates are part of a coordinating committee, together with the Ministers of the three affected States responsible for Chernobyl relief. At the operational level, projects are also implemented by the participating institutions of the Member States, and a Commission secretariat operates within the "exclusion zone", with liaison offices based in Kiev, Minsk and Moscow.

42. The programme of the group of seven major industrialized countries for the safety of nuclear power plants in central-eastern Europe and in the former Soviet Union, only marginally related to Chernobyl, falls within a specific institutional framework, with a board of directors, a secretariat and a plenary working group.

F. Areas of collaboration

43. Areas of collaboration include: (a) health, in which WHO, its principal sponsors in this regard (Finland, France, Germany, Japan, Netherlands and the United Kingdom) and other organizations and institutions involved in health projects collaborate to varying degrees under IPHECA; (b) nuclear safety, in which the United Nations system (IAEA) and certain countries of the group of 24 countries (Japan, Netherlands, Spain, Switzerland) collaborate in the review of the safety of RBMK nuclear power plants in the Russian Federation and Ukraine; and (c) agricultural countermeasures to reduce the contamination of milk and meat, which have been undertaken by the United Nations system (FAO/IAEA Joint Division) and Norway.

44. Through the Chernobyl Centre for International Research, a forum is provided for collaboration on studies relating to decontamination and waste treatment (Republic of Korea and IAEA), the assessment and analysis of the radiation consequences and evaluation of the assessment methods (Japan and IAEA), and other research projects of the Commission of the European Communities. IAEA is acting as secretariat of an Inter-Agency Committee preparing new Basic Safety Standards for Radiation Protection, jointly sponsored by WHO, FAO, ILO, IAEA, the Nuclear Energy Agency of the Organisation for Economic Cooperation and Development (NEA (OECD)) and the Pan-American Health Organization (PAHO), which aim at providing international standards for intervention after a nuclear accident. In the fields of economic and socio-psychological rehabilitation, Germany has helped support a project of ILO and of UNESCO/UNICEF. Finally, UNESCO provided urgently needed supplies to Belarus and Ukraine through cooperation with the European Community, the Canadian Government and a German non-governmental organization.

G. Areas of overlap

45. In several fields of activity, areas are apparent in which closer collaboration would enhance the effectiveness of assistance and the validity of

research. In some cases there are clear examples of overlap. In the field of health the United Nations system and the Commission of the European Communities are undertaking parallel projects to study thyroid disorders resulting from the Chernobyl accident (see paras. 83 (b) and (c) and 84 (d)), epidemiological registries (see para. 83 (b)), evacuees and liquidators (see para. 83 (b)), and retrospective dosimetry (see para. 83 (e)). These health issues are also covered by WHO under IPHECA, and although the Commission has participated in meetings and presentations of IPHECA, there appear to be few arrangements for collaboration on these studies. Such exchanges would be particularly appropriate for the application of Standardized Protocols, developed within the framework of IPHECA, which provide for common and consistent procedures in the conducting of medical comparisons and studies.

46. A number of projects concerning the radiation exposure of populations and the measurement and evaluation of radioactivity levels in different areas have been carried out both by agencies of the United Nations system (IAEA, WHO and ECE) and bilaterally (Germany, Italy and Switzerland). It is not certain that their results have been fully corroborated. The purpose of many of these studies is to enhance the effectiveness of assistance programmes, and their results and concluding recommendations are often presented to the authorities of regions that have been studied and to their inhabitants. It is therefore vital that the findings of these different studies be consolidated and that the subsequent recommendations be consistent. Projects to study the various effects of radioactive contamination on the environment are being undertaken by the United Nations system (IAEA, WMO, ECE and UNESCO), bilaterally, and by the Commission (see paras. 82 (b), (c) and (e) and 83 (d)).

47. Finally, a parallel is apparent between the coordinating mechanisms of the United Nations system and the Commission through the existence of two separate committees with the participation of the Ministers of the affected States responsible for Chernobyl relief. There has, to date, been no exchange between these two committees.

IV. SUMMARY OF ACTIVITIES OF THE INTERNATIONAL COMMUNITY

A. Activities of the United Nations system

World Health Organization

48. WHO established IPHECA in May 1991, supported almost entirely from a generous donation of the Government of Japan. At present, IPHECA is conducting six comprehensive projects, covering all three affected States.

49. The thyroid project deals with the detection, characterization and treatment of selected thyroid diseases in children living in the strictly controlled areas (where levels of radiocaesium contamination exceed 15 Ci/km², or 550 kBq/m²). Diseases of concern are thyroid cancer, benign tumours, autoimmune thyroiditis and hypothyroidism. The total number of children to be screened in all three States is about 75,000. An important component of this project is the strengthening of the local capability for the early detection of thyroid cancer and other thyroid diseases.

50. The haematology project is aimed at the detection and treatment of haemoblastoses, i.e. leukaemia and related diseases, in a total population of 270,000 living in the strictly controlled zones.

51. The brain damage in utero project deals with identification of psychological, psychoneurological and psychiatric problems of children exposed to radiation in utero, i.e. born within one year of the accident and who either live in the strictly controlled areas of all three States or were born to mothers evacuated from the 30 km exclusion zone. This constitutes up to 4,500 children. It will be followed by advanced examination of cases detected. As part of this project, a protocol was developed by experts trained abroad for the screening of mental abnormalities.

52. The epidemiological registry project aims at supporting a system for collection, processing, storage and exchange of medical and dosimetric data at the computer-assisted registries (both state and local) in all three States on the health impact of the Chernobyl accident, covering the general population, persons evacuated and recovery workers.

53. The goal of the oral health project, initiated in 1992, is to improve diagnostic and curative services in oral health in contaminated regions. Samples of tooth enamel are used for individual dosimetry by electron spin resonance (ESR) spectrometry.

54. General support activities include physical and biological dosimetry, communication, scientific information and general diagnostic services. Equipment provided by WHO as part of this project includes portable gamma spectrometers for environmental radiation measurements, thermoluminescent dosimeter (TLD) systems for prospective individual dosimetry, electron spin resonance (ESR) spectrometers for retrospective dosimetry, and a cytoscan facility for the analysis of stable chromosome aberrations in persons with the diseases specified in the above projects. An international conference facility has also been set up in Obninsk (Russian Federation) with a televideo-communication system.

55. An important component of WHO activities under IPHECA is the development and adoption of standardized protocols (for the thyroid, haematology, brain damage in utero and epidemiological registry projects), which allow comparisons, clinical and epidemiological studies to be carried out according to procedures common to all three affected States. A project to address the health of Chernobyl recovery workers (liquidators) has been prepared and will be initiated upon the availability of funding.

International Atomic Energy Agency

56. IAEA itself, as well as jointly with other agencies, is undertaking a number of projects in the affected areas, including several under a subprogramme on the "Radiological consequences of the Chernobyl accident", within the framework of the IAEA 1993/94 programme. The purpose of the project on environmental radiation monitoring stations, initiated with resources from the United Nations Trust Fund for Chernobyl, is to update the existing hardware and to monitor radiation contamination in the environment.

57. A project on caesium binders, using low-cost techniques to reduce the radioactive contamination of milk and meats in grazing animals, is being implemented by the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture, with additional support from the IAEA Division of Nuclear Safety. Field trials, training sessions and technology transfer were successfully completed in 1990-1992. Jointly with FAO, IAEA is implementing guidelines for agricultural countermeasures in the event of accidental releases of radioactive materials.

58. IAEA acts as secretariat of the Inter-Agency Committee, jointly sponsored by FAO, IAEA, ILO, NEA (OECD), PAHO and WHO, which is preparing new basic safety standards for radiation protection. This will provide international standards for intervention after a nuclear accident.

59. A coordinated research programme on "hot" particles has been conducted to address questions specifically related to the hazards of hot beta emitting particles.

60. IAEA is participating in two major research projects at the Chernobyl Centre for International Research, which cover decontamination and waste treatment (supported by a donation of the Government of the Republic of Korea) and the assessment and analysis of radiation consequences and evolution of the assessment methods (funds provided by the Government of Japan).

61. A project on the diagnostic analysis of the population through erythrocyte study is developing speckle-pattern tomography methods for the investigation of erythrocyte deformation and blood flow, and is looking to establish centres for blood diagnostic analysis.

62. Projects are being initiated, through the IAEA Technical Cooperation Budget, to advise on long-term measures for radiation monitoring and protection, to improve radiation spectroscopy measurement facilities, to review radiation protection conditions for the population, to develop new technology for the disposal of radioactive contaminated wood, and to establish in Ukraine a national centre of the International Nuclear Information System.

63. A project to undertake retrospective dosimetry of Chernobyl decontamination workers, evacuees and other high risk groups, including children, is under preparation and will be implemented in cooperation with WHO, when resources are available.

64. IAEA has recently set up a database on research and assistance related to the radiological consequences of the Chernobyl accident. This pursues in part a recommendation of the International Nuclear Safety Advisory Group to assemble all the relevant information on all aspects of the accident and its effects and to make it available to the nuclear community and general public.

65. IAEA is undertaking numerous projects in the field of nuclear safety, both individually and in collaboration with the Commission of the European Communities and other organizations. These include a comprehensive safety review of RBMK nuclear power plants, the assessment of "safety significant events", and the assessment and promotion of a "safety culture" in relevant organizations. However, these activities are regarded as distinct from those detailed above, which are of direct relevance to Chernobyl.

Food and Agriculture Organization of the United Nations

66. FAO has participated in the IAEA-led International Chernobyl Project and has undertaken a number of activities within its field of competence. Jointly with IAEA, FAO is preparing guidelines for agricultural countermeasures in the event of accidental releases of radioactive substances. The Joint Codex Alimentarius Commission with WHO adopted "Guidelines for Radionuclides in Food following Accidental Nuclear Contamination for Use in International Trade". The project entitled "Prussian Blue" is being implemented in cooperation with IAEA to reduce Caesium-137 contamination in the milk and meat of grazing animals. FAO participates in two standing Inter-Agency Committees dealing with Chernobyl issues: the ECE/FAO/ILO Committee on Forestry; and the Committee that is preparing new basic safety standards for radiation protection (also incorporating the recommendations of the Codex Alimentarius Commission).

United Nations Educational, Scientific and Cultural Organization

67. Since January 1991, UNESCO has launched more than 20 projects within the framework of its Chernobyl programme. Among the most significant are the construction in the affected States of nine Socio-Psychological Rehabilitation Centres for children and families affected by the accident and the training of their future personnel. Four of these Centres are part of a collaborative project with UNICEF. The Centres will be completed and operational before the end of 1993.

68. An integrated pilot project for the establishment of an economic and social development area is under way (in collaboration with all United Nations agencies concerned) and involves the relocation of 30,000 people, primarily victims of the Chernobyl accident, to a model "clean" environment, providing the necessary jobs, housing and community facilities for sustainable economic, social and environmental development. The Director-General of UNESCO officially launched the project with the signing of an agreement with the Russian Federation in June 1993.

69. Within the UNESCO Chernobyl Programme's activities in the field of socio-economic rehabilitation, a factory for the production of economically and culturally adapted prefabricated housing has been completed in Belarus. Prototypes of houses are presently being assembled and full-scale production will begin within 60 days from the time funding is made available. The project is to be expanded to the Russian Federation and Ukraine.

70. A project on the impact of nuclear power plants on hydrology was launched by UNESCO in 1991 in collaboration with the Commission of the European Communities, UNEP and IAEA.

71. UNESCO has also provided urgently needed supplies to schools and orphanages in both Belarus and Ukraine, as well as training and equipment to the Radiation Medicine Research Clinic in Minsk and the Kiev Radiation Protection Clinic.

International Labour Organisation

72. ILO successfully completed in 1992 the preparatory phase of a project of training for self-employment and income-generation, applying the Training for Rural Gainful Activities-based methodology, for rural districts with people

displaced by the Chernobyl accident, in cooperation with the Ministry of Labour of Belarus. The project became operational in the Dribinsk region of Belarus (recipient of 25,000 resettlers from affected territories), and is intended for wider implementation. ILO also participates in the Committee on Forestry and the Committee preparing new basic safety standards for radiation protection.

Economic Commission for Europe

73. ECE has been active in Chernobyl relief efforts since its first mission to the affected areas in mid-1990. At the request of the affected States it has conducted a number of workshops and other activities on resettlement of populations as a result of the Chernobyl accident, agro-technical methods to improve soils contaminated by radionuclides, the economic and social aspects of the consequences of radioactive contamination of agriculture, the collection and dissemination of technical information on soil decontamination, etc. It also participates in the Committee on Forestry, studying the radioactive contamination of forest ecosystems resulting from the Chernobyl accident.

United Nations Centre for Human Settlements

74. Habitat has fielded a project of assistance to the Town Planning Institute of Belarus for the revision of the territorial development plan of the Republic, introducing advanced technologies and methods. A project of assistance to the Ministry of Investment and Building of Ukraine for the formulation of an environmentally sound territorial plan for the resettlement of the population affected by the Chernobyl accident is soon to be initiated.

United Nations Children's Fund

75. UNICEF was authorized by its Executive Board in June 1992 to continue to provide support for children and mothers who were affected by the Chernobyl accident. As part of these activities, UNICEF is undertaking a joint collaborative project with UNESCO to establish four community centres for the rehabilitation of affected children and families. UNICEF assistance covers the provision of medical, educational and recreational material and the training of psycho-social personnel.

76. UNICEF has also provided iodized oil capsules and ultrasound equipment for the treatment of iodine deficiency disorders among children and, as part of its "Russian Winter Campaign" in December 1991, provided essential drugs and medical equipment to 11 hospitals in the Russian Federation, including areas affected by the Chernobyl accident.

B. Activities of the European Community

77. The European Community has undertaken multilateral assistance projects related to the Chernobyl disaster as part of TACIS (Technical Assistance for the Commonwealth of Independent States). Since the completion in 1991 of a study on treatment for contaminated wood, two principal projects have been undertaken. The activities of the project on radiation-proof facilities for decontamination at Chernobyl were directed towards the development, manufacture and testing of (a) a moveable installation for the combustion of organic radioactive waste resulting from decontamination measures, (b) a mobile decontamination

installation for vehicles and equipment, (c) a moveable installation for the cement compaction of radioactive waste arising from demolition and combustion, (d) automatic controls in farming equipment for unmanned soil tilling in order to reduce the exposure of agricultural workers to radiation in regions of low-level contamination, and (e) small-scale equipment for decontaminating gardens, fallow ground etc., where the use of large equipment is unfeasible.

78. The second project covered fire protection training at the Chernobyl nuclear power plant. It included the instruction of personnel in assembly and maintenance, inspection and acceptance, control, maintenance and repair, and quality safeguarding of the passive fire protection systems, the inculcation of higher work standards in nuclear power plant personnel, the drawing up of a standard training manual in Russian for fire protection systems, and the protection of specific areas facing imminent fire risk.

79. A total of ECU 0.6 million has been expended on these two projects. Five more assistance projects are under preparation in the field of nuclear safety, covering a review of European Community legislation, regulations and policies on decommissioning; preparation for the decommissioning of Chernobyl Units 1, 2 and 3; the management (and possibly disposal) of waste in the dumps around the Chernobyl site; training for decommissioning; and participation in Unit 4 follow-up activity. A further ECU 6 million has been committed for these projects.

80. In the area of nuclear safety assistance not related to the Chernobyl accident, ECU 80 million has been expended through TACIS in the Russian Federation and Ukraine. Additional general technical assistance amounting to ECU 14.6 million has been provided to Belarus and ECU 48.3 million to Ukraine.

81. Under an agreement between the Commonwealth of Independent States (Belarus, Russian Federation and Ukraine) and the Commission of the European Communities for international collaboration on the consequences of the Chernobyl accident, concluded on 23 June 1992, 10 experimental collaboration projects and 6 joint study projects are being implemented in the three affected States. Institutions from Belarus, Belgium, Denmark, France, Germany, Greece, Ireland, Italy, the Netherlands, Norway, Portugal, the Russian Federation, Spain, Sweden, Switzerland, the United Kingdom and Ukraine take part in the research activities.

82. The experimental collaboration projects deal with (a) the contamination of urban and rural surfaces by re-suspended material, (b) transfer of radionuclides through the terrestrial environment to agricultural products and livestock, including the evaluation of agro-chemical practices, (c) modelling and studying the mechanisms of transfer of radioactive material from terrestrial ecosystems to and in water bodies, (d) evaluation and development of decontamination strategies for a range of environmental situations, and evaluation of their efficacy and other impacts, and (e) determination of the behaviour of radionuclides in natural and semi-natural ecosystems (forest litter, understorey vegetation, meadow vegetation and wild animals). The results achieved during the first year of these five projects are at present under publication.

83. The other five projects focus on (a) quantification of exposure of irradiated persons, through an analysis of stable chromosomal damage in lymphocytes, (b) cancer registries, population registries, the follow-up of

liquidators and documentation on thyroid cancer in children, as a starting-point for further studies on epidemiology, (c) molecular characterization of childhood thyroid cancers observed in the surroundings of Chernobyl, (d) transfer of radionuclides to livestock and agricultural products and assessment of the effectiveness of various agricultural measures to reduce the contamination of milk and meat products, and (e) physical methods of retrospective dosimetry and calculational methods of dose reconstruction and exposure assessment.

84. The six joint study projects deal with (a) the development of computerized systems for predicting the radiological impact of accidents to aid off-site emergencies, (b) development of a more coherent and rational basis for establishing intervention levels in the event of a nuclear accident, (c) improvement of diagnosis and treatment of the effects of high dose accidental irradiation based on the evaluation of patients treated after the Chernobyl accident, (d) development of optimal treatment and preventive measures for childhood thyroid cancer, (e) analysis of potential pathways of exposure for people continuing to live and work in the contaminated regions, and (f) the establishment of an integrated computerized database of validated data for those radiological and environmental quantities of interest.

85. These projects are jointly financed by the European Community and the three affected States. The European Community share totals ECU 4.5 million since 1991 on the projects listed in paragraph 82, ECU 1.6 million on the projects listed in paragraph 83, and ECU 2.2 million on the joint study projects.

86. Multilateral activities of the European Community also include the programme of the group of seven major industrialized countries for the safety of the nuclear power plants in Central and Eastern Europe and in the former Soviet Union. Its scope is very wide, involving about $700 million, but is only marginally related to Chernobyl. The Community has established two consortia: one of nuclear power producers (engineering group) who will develop a master plan, and the other of the safety authorities of the Community and other participating European States with nuclear power plants. Activities include scientific symposia, surveys, field studies in the area of waste disposal and "twinning" programmes between the Community and certain nuclear power producers. In the medium and long term important commercial interests will come into play.

87. The Commission and the member States of the Community together contribute nearly ECU 90 million to the Multilateral Fund for Nuclear Reactor Safety and Radiation Protection, established by EBRD, out of a total of ECU 118 million. Assistance from this fund to be directed to two Russian nuclear power plants is in the planning stage. The fund also includes a technical assistance project specifically for Chernobyl to increase the safety of Unit 4, for which ECU 0.5 million is earmarked.

C. Bilateral activities

88. A number of bilateral programmes are being undertaken on a national basis by European Community member States, some of which are also linked to multilateral schemes. The primary focus of bilateral activity undertaken by the member States of the Community is in the field of nuclear safety and radiological protection. This includes risk and safety assessments, radioactive waste management, advisory services, training, the organization of symposia and

the improvement of nuclear safety systems. Financial commitments in these fields are approximately $35 million. The second important field of activity is that of contamination, radiation measurement and subsequent land remediation, entailing expenditures of about $29 million. The cost of technical equipment for these purposes amounts to $25 million up to 1995. Medical assistance has also been provided, including the establishment of a medical centre for victims of Chernobyl in Gomel (Belarus) and training facilities in Minsk, totalling over $106 million in cost. Food aid provided to the affected States since 1986 amounts to over $110 million. Holidays for children from the wider Chernobyl region have entailed about $16 million. Additional humanitarian assistance, such as the treatment of Chernobyl victims, in most cases children, in hospitals of member States of the Community, has been provided.

89. Canada is funding, jointly with the Commission of the European Communities, a project to review the safety of RBMK reactors. The project is being undertaken on a regional basis in the Commonwealth of Independent States and extends to Lithuania.

90. France is undertaking projects aimed at the rehabilitation of soils in the areas affected by Chernobyl. Support and the training of personnel in health-related activities have also been provided by its institutions, through IPHECA.

91. Italian scientific research institutions are active in bilateral and multilateral studies on the health effects of the Chernobyl accident. The Italian Agency for New Technology, Energy and the Environment, in cooperation with the Ukrainian Academy of Sciences, is carrying out a programme to monitor the exposure of the affected populations to radiation. To date the Agency has contributed over Lit 1.5 billion to this project and has also made available its mobile laboratory, in addition to specialized researchers. The Institute for Experimental Medicine, in cooperation with the Ukrainian Academy of Sciences, has financed the preliminary phase of a project concerning the treatment of illnesses deriving from exposure to small quantities of radionuclides, at a cost of Lit 390 million. An extensive study has been undertaken in Italian hospitals on groups of 300 children from areas affected by the accident. Italy is contributing ECU 10 million over a three-year period to the EBRD Multilateral Fund for Nuclear Reactor Safety and Radiation Protection.

92. Germany has, since mid-1991, carried out measurements of the radiation exposure of about 160,000 people and radiation readings at about 3,000 locations, over an area of about 10,000 km² in the Russian Federation and Ukraine, involving over 100 German specialists. Germany is at present undertaking preparatory work for the development of radiation-protection techniques for the decontamination of natural objects, buildings and installations resulting from the Chernobyl accident.

93. Japan is contributing to a collaborative project to review the safety of RBMK nuclear power plants in the Commonwealth of Independent States, and is supporting a project implemented through the Chernobyl Centre for International Research for the assessment and analysis of radiation consequences and evaluation of the assessment methods.

94. The Netherlands is involved in a collaborative project to review the safety of RBMK nuclear power plants in the Commonwealth of Independent States that have already been identified as deficient. Support and the training of personnel in

health-related activities have also been provided by its institutions, through IPHECA. The Netherlands is also sponsoring the establishment of a medical diagnosis and consultation centre in Belarus.

95. Norway has been involved in addressing the need for agricultural countermeasures, identified in the international Chernobyl project, through low-cost application of caesium binders which reduce the radioactivity levels in the milk and meat of grazing animals in the affected States. Field trials have been successfully completed in cooperation with the FAO/IAEA Joint Division, and the recipient States have expressed interest in the expansion of this project.

96. Spain has provided rehabilitative holidays to 420 children from the Briansk region of the Russian Federation, affected by the Chernobyl disaster, at a total cost of Ptas 71,840,000.

97. The Swedish Government, using the Swedish Nuclear Power Inspectorate as its executing body, is presently funding a cooperation and assistance programme aimed at assessing and improving RBMK reactors in the Russian Federation and the Ukraine and, most particularly, in the Baltic States. Activities in this regard also extend over a wider area of Central and Eastern Europe. Sweden has so far set aside SKr 188 million for the whole region. It has additionally contributed ECU 3 million to the EBRD Multilateral Fund for Nuclear Reactor Safety and Radiation Protection.

98. Between February and October 1991, Switzerland provided medical and technical support to a country hospital in Ukraine, 30 miles west of Chernobyl, at a total cost of SwF 600,000. Instruments were provided to the research centre in Chernobyl at a cost of SwF 100,000. A multiphased dosimetry project, aimed at measuring the radiation exposure of populations in Belarus and Ukraine, was undertaken by the Swiss Disaster Relief Unit in cooperation with the Paul Scherrer Institute. The total cost of the measuring facilities and for the various missions amounted to SwF 1 million.

99. The United Kingdom of Great Britain and Northern Ireland is carrying out a project of radioactive contamination monitoring, through which advice is being provided to Ukraine on the measurement of radioactive contamination levels in foodstuffs around Kiev in order to ensure food quality, particularly for export. It has also undertaken to finance a post-Chernobyl land remediation study aimed at the economic and social rehabilitation of affected areas in Ukraine at a cost of £217,000. A project is also under way involving the transfer of experience on nuclear power plant and safety management, through the twinning of the Chernobyl nuclear power plant with the Dungeness A nuclear power plant.

100. The United States of America is providing assistance to the Russian Federation and Ukraine for operational safety improvements in nuclear power plants. Through these activities, the United States Department of Energy and the Institute of Nuclear Power Operations assist those countries in the development of system-based emergency operating instructions for various types of reactor plants, at a cost of $6,794,266.

101. Numerous non-governmental organizations and institutions, notably the International Federation of Red Cross and Red Crescent Societies and the Japanese Sasakawa Memorial Health Foundation, have been active in providing assistance in the field of health and the provision of urgent supplies (see also

A/47/322/Add.1 and 2-E/1992/102/Add.1 and 2). Many of these organizations and institutions participate through IPHECA. WHO is at present compiling a database on all institutions and organizations involved in projects to address the health consequences of the Chernobyl accident in the three affected States.

V. CONCLUDING OBSERVATIONS

102. The exchange of information that has been undertaken since the forty-seventh session of the General Assembly has enabled a fuller understanding of the differing approaches taken by the respective organizations. It has demonstrated clear distinctions in both the principal fields of assistance being provided and in the main objectives that guide and, moreover, ensure financing for these activities.

103. Considerable assistance is being rendered by the European Community and the group of 24 countries in the field of decontamination of territories affected by the Chernobyl disaster. Assistance on their part, however, is most extensive and well-funded in the field of nuclear safety, encompassing not only the States affected by the Chernobyl disaster, but other areas of Eastern and Central Europe where a risk is perceived on the basis of western nuclear safety standards. Research efforts are being undertaken in the fields of health, food, agriculture and the environment. The premise in this approach is to prevent "other Chernobyls" from occurring, to enhance preparedness should they occur, and to elaborate appropriate methodologies to address potential consequences based on the findings of studies on the effects of the Chernobyl disaster.

104. The United Nations was, from the outset, specifically mandated to study, mitigate and minimize the consequences of the Chernobyl disaster in the most affected States. In the course of addressing this issue, these consequences have crystallized into concrete and urgent needs of the affected populations that are reflected in the four priority areas for action. The overriding objective of the United Nations system has thus been to achieve the most effective results in dealing with the health, social and environmental effects and after-effects that are manifest.

105. The approach of the United Nations was adapted to address this issue realistically within the more complex economic and social context that has evolved in the affected States. It has also had to respond to concerns that the interest of the international community with regard to the effects of the accident lay principally in research. An appropriate balance had therefore to be achieved in the light of pleas for real assistance.

106. These two basic approaches, however, are complementary, and can further be considered as providing a solid basis for an appropriate and effective division of labour, as they encompass between them the immediate priority requirements of the affected populations and territories, imperative measures to prevent a recurrence of such tragic proportions, international agreement and guidelines on measures that should be undertaken in the event of a similar occurrence and, finally, an unprecedented understanding of the health, social and environmental impact of the disaster itself.

107. Areas of overlap, reflecting common interest, provide obvious opportunities for collaboration, for resources to be combined to enable more meaningful

assistance and for the pooling of expertise and knowledge in an evolving science. In this regard, existing examples of collaboration are clearly demonstrative of the advantages.

108. The role that the United Nations can best play is one that cultivates an interdisciplinary focus, necessitated by the diverse nature of the accident's effects. On a project-specific basis, it can be a catalyst for the involvement of the international community in mobilizing purposeful support to whichever organization or institution can most effectively respond to the priority needs.